

What Is Claimed Is:

1. An catalyst suitable for converting carbon monoxide and water to hydrogen and carbon dioxide comprising a metal oxide carrier comprising a copper oxide, an aluminum oxide, and a metal oxide selected from the group 5 consisting of zinc oxide, chromium oxide, and magnesium oxide, characterized in that said catalyst further comprises, supported on said metal oxide carrier, 0.1-10% platinum (Pt) and 0-5% rhenium (Re), based on the weight of said metal oxide carrier.
- 10 2. The catalyst as claimed in Claim 1, wherein said metal oxide carrier comprises a copper oxide, an aluminum oxide, and a zinc oxide, wherein said metal oxide carrier comprises 25-55% copper, based on the weight of said metal oxide carrier.
- 15 3. The catalyst as claimed in Claim 1, wherein said catalyst comprises 0.5-5% Pt, based the weight of said metal oxide carrier.
4. The catalyst as claimed in Claim 3, wherein said catalyst comprises 0.1-3% Re, based on the weight of said metal oxide carrier.
- 20 5. A method for converting CO and water to hydrogen and CO₂, which comprises contacting a hydrogen-rich gas feed containing CO and steam with said catalyst as claimed in Claim 1 at 200~500°C.
- 25 6. The method as claimed in Claim 5, wherein said hydrogen-rich gas feed is a hydrogen-rich reformate gas formed by reforming a hydrocarbon.
7. The method as claimed in Claim 5, wherein said hydrogen-rich gas feed comprises more than 30 mole% of hydrogen, and the mole ratio of H₂O to 30 CO is 2-10.

8. The method as claimed in Claim 5, wherein the metal oxide carrier of said catalyst comprises a copper oxide, an aluminum oxide, and a zinc oxide, wherein said metal oxide carrier comprises 25-55% copper, based on the weight of said metal oxide carrier.

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9. The method as claimed in Claim 5, wherein said catalyst comprises 0.5-5% Pt, based on the weight of said metal oxide carrier.

10. The method as claimed in Claim 9, wherein said catalyst comprises
10 0.1-3% Re, based on the weight of said metal oxide carrier.